

EXHIBIT E

**IN THE UNITED STATES DISTRICT COURT
DISTRICT OF DELAWARE**

IPA TECHNOLOGIES, INC.,

Plaintiff,

v.

AMAZON.COM, INC. and AMAZON DIGITAL
SERVICES LLC,

Defendants.

C.A. No. 1:16-CV-01266-RGA-SRF

DEFENDANTS' SECOND SUPPLEMENTAL INVALIDITY CONTENTIONS

I. INTRODUCTION

Pursuant to Fed. R. Civ. P. 26(e)(1)(A) and footnote 4 of the Default Standard, defendants Amazon.com, Inc. and Amazon Digital Services, LLC¹ (collectively, “Amazon” or “Defendants”) provide the following Second Supplemental Invalidity Contentions to plaintiff IPA Technologies, Inc. (“IPA” or “Plaintiff”) regarding the currently asserted claims of U.S. Patent Nos. 6,851,115 (“the ’115 patent”); 7,036,128 (“the ’128 patent”); and 7,069,560 (“the ’560 patent”) (collectively, the “Asserted Patents”). Amazon provides this supplement in view of RETSINA source code and publications received from Carnegie Mellon University and KQML/KIF specifications identified by Amazon during the course of discovery. Amazon reserves the right to provide further supplements in view of additional productions or documents received from third parties or that Amazon locates from ongoing investigations. Amazon incorporates the Preliminary Invalidity

¹ On January 1, 2020, Amazon Digital Services, LLC merged into Amazon.com Services LLC.

Contentions and First Supplemental Invalidity Contentions by reference in these Second Supplemental Invalidity Contentions.

Plaintiff has narrowed its asserted claims of the Asserted Patents against Amazon as identified in the below table (collectively, the “Asserted Claims”).

Patent	Asserted Claims
'115 patent	1, 5, 6, 7, 10, 11, 15, 29, 34, 35, 38, 61, 62, 64, 69, 71
'128 patent	23, 24, 25, 26, 40
'560 patent	1, 20, 22, 26, 28, 29, 34, 45, 50

These Second Supplemental Invalidity Contentions include certain amended and added invalidity arguments based on information obtained through the course of discovery. Amazon reserves the right to combine invalidity arguments and references disclosed in the Preliminary Invalidity Contentions, First Supplemental Invalidity Contentions, and/or Second Supplemental Invalidity Contentions as identified herein.

Amazon provides Invalidity Contentions for the above-identified Asserted Claims of the Asserted Patents. To the extent IPA later attempts to assert additional claims against Amazon, Amazon reserves the right to amend its Invalidity Contentions and contend that any additional claims are also invalid. Amazon’s Invalidity Contentions are not an admission of validity as to any other claims of the Asserted Patents. Amazon retains full rights to rely on and elect whatever prior art it deems appropriate for its trial.

Based on Amazon’s investigation and knowledge developed to date, Amazon: (a) identifies each currently known item of prior art that anticipates and/or renders obvious the Asserted Claims; (b) states whether each such item of prior art anticipates the Asserted Claims or renders the Asserted Claims obvious (alone or in combination); (c) provides claim charts identifying where specifically in each item of prior art each element of the Asserted Claims is found; and (d) identifies

grounds of invalidity of the Asserted Claims under 35 U.S.C. § 112 based on indefiniteness, enablement, and/or written description.

Amazon incorporates by reference all prior art references, charts, theories, and disclosures served on IPA in any prior or pending court action or proceeding before the Patent Trial and Appeal Board involving any of the Asserted Patents as through set forth fully herein, including but not limited to, *IPA Technologies, Inc. v. Amazon.com, Inc.*, No. 16-cv-01266-RGA (D. Del.), *IPA Technologies, Inc. v. Microsoft Corp.*, No. 18-cv-01-RGA (D. Del.), *IPA Technologies, Inc. v. Google LLC*, No. 18-cv-318-RGA (D. Del.), *Google LLC v. IPA Technologies, Inc.*, IPR2019-00728 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00729 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00730 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00731 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00732 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00733 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00734 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00735 (Feb. 26, 2019), *Google LLC v. IPA Technologies, Inc.*, IPR 2019-00736 (Feb. 26, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00810 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00811 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00812 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00813 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00814 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00835 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00836 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00837 (March 19, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00838 (March 20, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-00839 (March 20, 2019), *Microsoft Corp., v. IPA Technologies, Inc.*, IPR2019-

00840 (March 20, 2019). As stated above, Amazon also incorporates by reference the previously served Preliminary Invalidity Contentions and First Supplemental Invalidity Contentions.

Amazon's invalidity contentions are based on information reasonably available at this time with respect to the Asserted Claim(s), and are necessarily preliminary and may require subsequent amendment, modification, and/or supplementation. Amazon reserves the right to amend, modify, and/or supplement these invalidity contentions based on, among other things, amendments, modifications or supplements to IPA's infringement contentions, further investigation, third-party discovery, fact or expert discovery and/or evaluation of the scope and content of the prior art (including, for example, the prior art from all other cases in which IPA asserted one or more of the Asserted Patents), disclosure of the parties' claim constructions, an order construing the Asserted Claims, new developments in the case, or any other basis contemplated by the Federal Rules of Civil Procedure, the Court's Local Rules, and any other applicable order entered by the Court.²

Moreover, fact discovery is ongoing and Amazon has not obtained deposition testimony from any of the named inventors of the Asserted Patents or any third party, including, without limitation, deposition of any third party identified in these invalidity contentions. Amazon expects further discovery will reveal additional prior art, including related disclosures and corresponding evidence for many of the prior art references identified herein. As such, Amazon has not yet completed their investigation, discovery or analysis of matters relating to the validity or enforceability of the Asserted Claim(s), including, without limitation, invalidity due to on-sale statutory bars, public use statutory bars, improper inventorship, or unenforceability due to inequitable conduct. The disclosures herein are not and should not be construed as a statement

² See, e.g., Default Standard for Discovery, Including Discovery of Electronically Stored Information ("ESI"), at ¶ 4 n.3 ("As these disclosures are 'initial,' each party shall be permitted to supplement.").

that no other persons have discoverable information, that no other documents, data compilations, and/or tangible things exist that Amazon may use to support its claims or defenses, or that no other legal theories or factual bases will be pursued. Accordingly, Amazon reserves the right to amend, modify and/or supplement these invalidity contentions as additional information is discovered, identified or otherwise appreciated, including testimony about the scope and content of the prior art and the claimed inventions.

For example, Amazon continue to engage in third-party discovery, including as a result of third-party subpoenas served on SRI International, Rensselaer Polytechnic Institute, IEEE, Inc., Texas Instruments, and Carnegie Mellon. Further, Amazon is still evaluating the large universe of potential prior art to identify additional prior art systems, publications related to those systems, and the proper third parties from which to seek such discovery.

These Second Supplemental Invalidity Contentions are based on Amazon's present understanding of IPA's infringement contentions served on Amazon on July 10, 2019. Nothing in these contentions should be regarded as conceding that IPA's infringement contentions are legally or factually adequate or as necessarily reflecting the proper interpretation of the claims or an interpretation of the claims that Amazon agrees with or proposes. The Markman hearing was held on May 14, 2020, and the Court entered its Claim Construction Order on May 26, 2020. D.I. 126. Amazon disputes IPA's apparent claim interpretations. To the extent additional information regarding IPA's infringement contentions becomes available, Amazon anticipates that it will provide corresponding invalidity contentions correlating IPA's interpretation of the claims with the prior art and Amazon may thus amend its invalidity contentions accordingly as applicable to the claims asserted by IPA against Amazon.

Nothing in these invalidity contentions shall be treated as an admission that any of

Amazon's accused products meets any limitation of the Asserted Claims. Amazon denies that it infringes any claim of the Asserted Patents. To the extent that any prior art reference identified by Amazon contains a claim element that is the same as or similar to an element in an accused product, inclusion of that reference in Amazon's invalidity contentions shall not be deemed a waiver of any claim construction or non-infringement position. Any use of these invalidity contentions to support any allegation of infringement would be misleading, false, and wrong as a matter of law and fact.

Unless otherwise specified, the invalidity contentions set forth herein are based on the alleged priority dates of the Asserted Patent asserted by IPA in its infringement contentions. To the extent IPA asserts entitlement to an earlier priority date for prior art purposes, Amazon reserves the right to amend these contentions. Further, nothing in these contentions constitutes an admission concerning the priority dates, conception date or reduction to practice of the Asserted Claims of the Asserted Patents.

II. IDENTIFICATION OF PRIOR ART

The concepts disclosed and claimed in each of the Asserted Patents are not new, and had been disclosed, and actively practiced by others prior to the claimed invention date. The prior art includes various documents, products, patents and inventions that separately and together render the Asserted Claims invalid. In addition, as described in more detail in the Preliminary Invalidity Contentions and First Supplemental Invalidity Contentions, claims of the Asserted Patents are invalid under 35 U.S.C. § 112.

Amazon asserts that the prior art listed in Exhibits A–D, individually or in combination, invalidate(s) the Asserted Claims. Amazon identifies patents, publications, and the products and systems they describe as prior art under 35 U.S.C. §§102 (a), (b), (e), (g) and §103. Amazon asserts that as of the date of these invalidity contentions, these products and systems: (1) were

known or used in this country before the alleged invention of the claimed subject matter of the Asserted Claims, (2) were in public use and/or on sale in this country more than one year before the filing date of the patent, and/or (3) were invented in this country by another who did not abandon, suppress, or conceal, before the alleged invention of the claimed subject matter of the asserted claim. These prior art products and systems and their associated patents and/or printed publications individually anticipate and/or collectively render obvious each of the Asserted Claims.

These prior art references and products disclose each and every element of one or more of the Asserted Claims either explicitly, inherently, or via an obvious combination and may also be relied upon to show the state of the art in the relevant timeframes. The date these prior art items were offered for sale or publicly used or known, is at least as early as the date the related publications were published. Amazon anticipates that the actual dates, circumstances, and identities of individuals will be the subject of third party discovery during this lawsuit. Amazon therefore reserves the right to modify, amend, or supplement these invalidity contentions if additional information becomes available during the course of discovery.

A. THE '115 PATENT

1. IDENTIFICATION ON CLAIM-BY-CLAIM BASES OF INVALIDITY

Amazon identifies, on a claim-by-claim basis, its contention of whether each asserted claim of the Asserted Patents is invalidated under 35 U.S.C. § 102 and/or 103.

Patent	Claim	Identification of invalidity
'115 Patent	1	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	5	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	6	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	7	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	10	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	11	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	15	This claim is invalid under 35 U.S.C. § 102 and/or §103.

Patent	Claim	Identification of invalidity
	29	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	34	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	35	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	38	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	61	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	62	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	64	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	69	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	71	This claim is invalid under 35 U.S.C. § 102 and/or §103.

2. IDENTIFICATION OF ANTICIPATING PRIOR ART

Prior art references anticipating one or more of the Asserted Claims are listed in the tables below. The attached claim chart in Exhibit A-26 demonstrates where each limitation of the anticipated claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. At least the following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), (e) and/or (g).

a. Prior Art Publications That Anticipate the Asserted Claims of the '115 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System ³	1994-1997	Carnegie Mellon University	"RETSINA System"

³ Upon information and belief, the public disclosures and demonstrations of the RETSINA System and various implementations of the RETSINA System between the years 1994-1997 includes, but is not limited to: (1) Katia Sycara et al., "Distributed Intelligent Agents" (December 1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/ieee-agents96.pdf>; (2) Katia Sycara et al., "Coordination of Multiple Intelligent Software Agents," (1995), *available at* <https://www.cs.cmu.edu/~softagents/papers/ijcis-pleiades.pdf>; (3) Keith Decker et al., "Middle-Agents for the Internet" (1997), *available at* <http://www.cs.cmu.edu/~softagents/papers/ijcai97-final.pdf>; (4) Mike Williamson, et al., "Unified Information and Control Flow in Hierarchical Task Networks" (1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/provisions.pdf>; (5) Mike Williamson et al., "Executing Decision-theoretic Plans in Multi-agent Environments" (1996), *available at* <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>; and (6) the RETSINA publications identified in Exhibits A-22, B-22, C-22 and D of Defendant's

Title	Date of Publication	Author/Publisher	Short Cite
Distributed Intelligent Agents	December 1996 ⁴	Katia Sycara, et al.	“Sycara 2”

b. Prior Art Systems/Services That Anticipate the Asserted Claims of the '115 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	RETSINA System

3. IDENTIFICATION OF INVALIDITY DUE TO OBVIOUSNESS

a. Obviousness Combinations

The attached claim charts in Exhibits A-23 and A-26, in combination with the claim chart of Exhibit A-X from the Preliminary Invalidity Contentions demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious. Furthermore, Amazon identifies at least the following additional prior art

Preliminary Infringement Contentions. Additionally, the RETSINA demonstrations produced together with these Second Supplemental Invalidity contentions further demonstrate the and public availability of the RETSINA system.

⁴ Upon information and belief, this paper was published in IEEE Intelligent Systems, volume 11, no. 6, pp. 36-46 in December 1996 and is publicly available on Carnegie Mellon University’s website (*available at* <https://www.cs.cmu.edu/~softagents/papers/ieee-agents96.pdf>).

references that either alone or in combination with any of the anticipatory prior art references (identified above or in the Preliminary Invalidity Contentions), the knowledge of a person having ordinary skill in the art, and/or other prior art renders the Asserted Claims invalid as obvious under 35 U.S.C. § 103:

b. Additional Prior Art Publications That Render Obvious the Asserted Claims of the '115 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University	"RETSINA System"
Distributed Intelligent Agents	December 1996	Katia Sycara, et al.	"Sycara 2"
Middle-Agents for the Internet	1997 ⁵	Keith Decker, et al.	"Decker 3"
Designing a Multi-Agent Portfolio Management System	1997 ⁶	Keith Decker, et al.	"Decker 4"
Matchmaking and Brokering	1996 ⁷	Keith Decker, et al.	"Decker 5"
Unified Information and Control Flow in Hierarchical Task Networks	1996 ⁸	Mike Williamson, et al.	"Williamson"
Executing Decision-theoretic Plans in Multi-agent Environments	1996 ⁹	Mike Williamson, et al.	"Williamson 2"
Specification of the KQML Agent-Communication Language	1993 ¹⁰	Tim Finin, et al.	"KQML 1993"

⁵ Upon information and belief, this paper was presented in the Proceedings of the Fifteenth International Joint Conference on Artificial Intelligence in 1997 and is available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.421.8870&rep=rep1&type=pdf>.

⁶ Upon information and belief, this paper was presented in the Proceedings of AAI-96 and is available at <https://www.aaai.org/Papers/Workshops/1996/WS-96-06/WS96-06-004.pdf>.

⁷ Upon information and belief, this paper was published in 1996 and is available at <https://www.cs.cmu.edu/~softagents/papers/icmas96-matchbroker.pdf>.

⁸ Upon information and belief, this paper was presented in the Proceedings of the AAI-96 Workshop on Theories of Planning, Action, and Control in 1996 and is available at <https://www.cs.cmu.edu/~softagents/papers/provisions.pdf>.

⁹ Upon information and belief, this paper was presented in the Proceedings of the AAI-96 Workshop on Theories of Planning, Action, and Control in 1996 and is available at <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>.

¹⁰ Upon information and belief, this KQML specification was published in 1993 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqmlspec.pdf>.

Title	Date of Publication	Author/Publisher	Short Cite
A Proposal for a new KQML Specification	1997 ¹¹	Yannis Labrou, et al.	“KQML 1997”

c. Additional Prior Art Systems/Services That Render Obvious the Asserted Claims of the ’115 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	RETSINA System

d. Motivation for Combining Identified Combinations of Prior Art

The combinations of references provided in the accompanying prior art reference charts in Exhibits A-23 and A-26, in combination with the claim chart of Exhibit A-X from the Preliminary Invalidity Contentions are exemplary and are not intended to be exhaustive. Amazon incorporates by reference the reservation of rights, legal standard, and motivation to combine set forth in Section II.A.3.e. of the Preliminary Invalidity Contentions, as though fully set forth herein. The motivations to combine such references identified in Section II.A.3.e of the Preliminary Invalidity Contentions are equally applicable to the prior art identified above, and are incorporated by reference as though fully set forth herein. In particular, RETSINA system, Sycara 2, Decker 3, Decker 4, Decker 5, Williamson, Williamson 2, KQML 93, and KQML 97 are references related

¹¹ Upon information and belief, this KQML specification was published in 1997 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqml97.pdf>.

to the KQML and KIF software agent architecture (referred to as “KQML/KIF Prior Art” in the Preliminary Invalidity Contentions).

B. THE '128 PATENT

1. IDENTIFICATION ON CLAIM-BY-CLAIM BASES OF INVALIDITY

Amazon identifies, on a claim-by-claim basis, their contention of whether each asserted claim of the Asserted Patents is invalidated under 35 U.S.C. § 102 and/or 103.

Patent	Claim	Identification of invalidity
	23	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	24	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	25	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	26	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	40	This claim is invalid under 35 U.S.C. § 102 and/or §103.

2. IDENTIFICATION OF ANTICIPATING PRIOR ART

Prior art references anticipating one or more of the Asserted Claims are listed in the tables below. The attached claim chart in Exhibit B-26 demonstrates where each limitation of the anticipated claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a person having ordinary skill in the art. The following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Publications That Anticipate the Asserted Claims of the '128 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System ¹²	1994-1997	Carnegie Mellon University	“RETSINA System”

¹² Upon information and belief, the public disclosures and demonstrations of the RETSINA System and various implementations of the RETSINA System between the years 1994-1997 includes, but is not limited to: (1) Katia Sycara et al., “Distributed Intelligent Agents” (December 1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/ieec->

Title	Date of Publication	Author/Publisher	Short Cite
Distributed Intelligent Agents	December 1996 ¹³	Katia Sycara, et al.	“Sycara 2”

b. Prior Art Systems/Services That Anticipate the Asserted Claims of the '128 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as evidenced at least by the documents identified herein.	RETSINA System

agents96.pdf; (2) Katia Sycara et al., “Coordination of Multiple Intelligent Software Agents,” (1995), *available at* <https://www.cs.cmu.edu/~softagents/papers/ijcis-pleiades.pdf>; (3) Keith Decker et al., “Middle-Agents for the Internet” (1997), *available at* <http://www.cs.cmu.edu/~softagents/papers/ijcai97-final.pdf>; (4) Mike Williamson, et al., “Unified Information and Control Flow in Hierarchical Task Networks” (1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/provisions.pdf>; (5) Mike Williamson et al., “Executing Decision-theoretic Plans in Multi-agent Environments” (1996), *available at* <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>; and (6) the RETSINA publications identified in Exhibits A-22, B-22, C-22 and D of Defendant’s Preliminary Infringement Contentions. Additionally, the RETSINA demonstrations produced together with these Second Supplemental Invalidity contentions further demonstrate the and public availability of the RETSINA system.

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3. IDENTIFICATION OF INVALIDITY DUE TO OBVIOUSNESS

a. Obviousness Combinations

The attached claim charts in Exhibits B-23 and B-26, in combination with the claim chart of Exhibit B-X from the Preliminary Invalidity Contentions demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious. Furthermore, Amazon identifies at least the following additional prior art references that either alone or in combination with any of the anticipatory prior art references (identified above), the knowledge of a person having ordinary skill in the art, and/or other prior art renders the Asserted Claims invalid as obvious under 35 U.S.C. § 103:

b. Additional Prior Art Publications That Render Obvious the Asserted Claims of the '128 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University	“RETSINA System”
Distributed Intelligent Agents	December 1996	Katia Sycara, et al.	“Sycara 2”
Middle-Agents for the Internet	1997 ¹⁴	Keith Decker, et al.	“Decker 3”
Designing a Multi-Agent Portfolio Management System	1997 ¹⁵	Keith Decker, et al.	“Decker 4”
Matchmaking and Brokering	1996 ¹⁶	Keith Decker, et al.	“Decker 5”
Unified Information and Control Flow in Hierarchical Task Networks	1996 ¹⁷	Mike Williamson, et al.	“Williamson”

¹⁴ Upon information and belief, this paper was presented in the Proceedings of the Fifteenth International Joint Conference on Artificial Intelligence in 1997 and is available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.421.8870&rep=rep1&type=pdf>.

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Specification of the KQML Agent-Communication Language	1993 ¹⁹	Tim Finin, et al.	“KQML 1993”
A Proposal for a new KQML Specification	1997 ²⁰	Yannis Labrou, et al.	“KQML 1997”

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d. Motivation for Combining Identified Combinations of Prior Art

The combinations of references provided in the accompanying prior art reference charts in Exhibits B-23 and B-26, in combination with the claim chart of Exhibit B-X from the Preliminary Invalidity Contentions are exemplary and are not intended to be exhaustive. Amazon incorporates

¹⁸ Upon information and belief, this paper was presented in the Proceedings of the AAAI-96 Workshop on Theories of Planning, Action, and Control in 1996 and is available at <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>.

¹⁹ Upon information and belief, this KQML specification was published in 1993 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqmlspec.pdf>.

²⁰ Upon information and belief, this KQML specification was published in 1997 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqml97.pdf>.

by reference the reservation of rights, legal standard, and motivation to combine set forth in Section II.A.3.e. of the Preliminary Invalidity Contentions, as though fully set forth herein. The motivations to combine such references identified in Section II.A.3.e of the Preliminary Invalidity Contentions are equally applicable to the prior art identified above, and are incorporated by reference as though fully set forth herein. In particular, RETSINA system, Sycara 2, Decker 3, Decker 4, Decker 5, Williamson, Williamson 2, KQML 93, and KQML 97 are references related to the KQML and KIF software agent architecture (referred to as “KQML/KIF Prior Art” in the Preliminary Invalidity Contentions).

C. THE '560 PATENT

1. IDENTIFICATION ON CLAIM-BY-CLAIM BASES OF INVALIDITY

Amazon identifies, on a claim-by-claim basis, their contention of whether each asserted claim of the Asserted Patents is invalidated under 35 U.S.C. § 102 and/or 103.

Patent	Claim	Identification of invalidity
'560 Patent	1	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	20	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	22	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	26	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	28	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	29	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	34	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	45	This claim is invalid under 35 U.S.C. § 102 and/or §103.
	50	This claim is invalid under 35 U.S.C. § 102 and/or §103.

2. IDENTIFICATION OF ANTICIPATING PRIOR ART

Prior art references anticipating one or more of the Asserted Claims are listed in the tables below. The attached claim chart in Exhibit C-26 demonstrates where each limitation of the anticipated claims is found in certain of the references listed below, either expressly or inherently in the larger context of the passage, or inherently as the reference as a whole is understood by a

person having ordinary skill in the art. The following patents and publications are prior art under at least 35 U.S.C. §§ 102(a), (b), or (e).

a. Prior Art Publications That Anticipate the Asserted Claims of the '560 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System ²¹	1994-1997	Carnegie Mellon University	“RETSINA System”
Distributed Intelligent Agents	December 1996 ²²	Katia Sycara, et al.	“Sycara 2”

b. Prior Art Systems/Services That Anticipate the Asserted Claims of the '560 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University designed, developed, used, advertised, published, and also offered for sale	RETSINA System

²¹ Upon information and belief, the public disclosures and demonstrations of the RETSINA System and various implementations of the RETSINA System between the years 1994-1997 includes, but is not limited to: (1) Katia Sycara et al., “Distributed Intelligent Agents” (December 1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/ieee-agents96.pdf>; (2) Katia Sycara et al., “Coordination of Multiple Intelligent Software Agents,” (1995), *available at* <https://www.cs.cmu.edu/~softagents/papers/ijcis-pleiades.pdf>; (3) Keith Decker et al., “Middle-Agents for the Internet” (1997), *available at* <http://www.cs.cmu.edu/~softagents/papers/ijcai97-final.pdf>; (4) Mike Williamson, et al., “Unified Information and Control Flow in Hierarchical Task Networks” (1996), *available at* <https://www.cs.cmu.edu/~softagents/papers/provisions.pdf>; (5) Mike Williamson et al., “Executing Decision-theoretic Plans in Multi-agent Environments” (1996), *available at* <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>; and (6) the RETSINA publications identified in Exhibits A-22, B-22, C-22 and D of Defendant’s Preliminary Infringement Contentions. Additionally, the RETSINA demonstrations produced together with these Second Supplemental Invalidity contentions further demonstrate the and public availability of the RETSINA system.

²² Upon information and belief, this paper was published in IEEE Intelligent Systems, volume 11, no. 6, pp. 36-46 in December 1996 and is publicly available on Carnegie Mellon University’s website (*available at* <https://www.cs.cmu.edu/~softagents/papers/ieee-agents96.pdf>).

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
		and/or sold to its customers this system as evidenced at least by the documents identified herein.	

3. IDENTIFICATION OF INVALIDITY DUE TO OBVIOUSNESS

a. Obviousness Combinations

The attached claim charts in Exhibits C-23 and C-26, in combination with the claim chart of Exhibit C-X from the Preliminary Invalidity Contentions demonstrate that each prior art reference disclosed in the preceding sections, either alone or in combination with other prior art, or in combination with the knowledge of one skilled in the art, also renders the Asserted Claims invalid as obvious. Furthermore, Amazon identifies at least the following additional prior art references that either alone or in combination with any of the anticipatory prior art references (identified above), the knowledge of a person having ordinary skill in the art, and/or other prior art renders the Asserted Claims invalid as obvious under 35 U.S.C. § 103:

b. Additional Prior Art Publications That Render Obvious the Asserted Claims of the '560 Patent

Title	Date of Publication	Author/Publisher	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University	“RETSINA System”
Distributed Intelligent Agents	December 1996	Katia Sycara, et al.	“Sycara 2”
Middle-Agents for the Internet	1997 ²³	Keith Decker, et al.	“Decker 3”

²³ Upon information and belief, this paper was presented in the Proceedings of the Fifteenth International Joint Conference on Artificial Intelligence in 1997 and is available at <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.421.8870&rep=rep1&type=pdf>.

Title	Date of Publication	Author/Publisher	Short Cite
Designing a Multi-Agent Portfolio Management System	1997 ²⁴	Keith Decker, et al.	“Decker 4”
Matchmaking and Brokering	1996 ²⁵	Keith Decker, et al.	“Decker 5”
Unified Information and Control Flow in Hierarchical Task Networks	1996 ²⁶	Mike Williamson, et al.	“Williamson”
Executing Decision-theoretic Plans in Multi-agent Environments	1996 ²⁷	Mike Williamson, et al.	“Williamson 2”
Specification of the KQML Agent-Communication Language	1993 ²⁸	Tim Finin, et al.	“KQML 1993”
A Proposal for a new KQML Specification	1997 ²⁹	Yannis Labrou, et al.	“KQML 1997”

c. Additional Prior Art Systems/Services That Render Obvious the Asserted Claims of the ’560 Patent

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
RETSINA System	1994-1997	Carnegie Mellon University designed, developed, used, advertised, published, and also offered for sale and/or sold to its customers this system as	RETSINA System

²⁴ Upon information and belief, this paper was presented in the Proceedings of AAAI-96 and is available at <https://www.aaai.org/Papers/Workshops/1996/WS-96-06/WS96-06-004.pdf>.

²⁵ Upon information and belief, this paper was published in 1996 and is available at <https://www.cs.cmu.edu/~softagents/papers/icmas96-matchbroker.pdf>.

²⁶ Upon information and belief, this paper was presented in the Proceedings of the AAAI-96 Workshop on Theories of Planning, Action, and Control in 1996 and is available at <https://www.cs.cmu.edu/~softagents/papers/provisions.pdf>.

²⁷ Upon information and belief, this paper was presented in the Proceedings of the AAAI-96 Workshop on Theories of Planning, Action, and Control in 1996 and is available at <https://www.aaai.org/Papers/Symposia/Fall/1996/FS-96-01/FS96-01-026.pdf>.

²⁸ Upon information and belief, this KQML specification was published in 1993 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqmlspec.pdf>.

²⁹ Upon information and belief, this KQML specification was published in 1997 and is available at <https://www.csee.umbc.edu/csee/research/kqml/papers/kqml97.pdf>.

System/Service	Relevant Dates	Persons/Entities Involved in Prior Use, Sale, and/or Offers for Sale	Short Cite
		evidenced at least by the documents identified herein.	

d. Motivation for Combining Identified Combinations of Prior Art

The combinations of references provided in the accompanying prior art reference charts in Exhibits C-23 and C-26, in combination with the claim chart of Exhibit C-X from the Preliminary Invalidity Contentions are exemplary and are not intended to be exhaustive. Amazon incorporates by reference the reservation of rights, legal standard, and motivation to combine set forth in Section II.A.3.e. of the Preliminary Invalidity Contentions, as though fully set forth herein. The motivations to combine such references identified in Section II.A.3.e of the Preliminary Invalidity Contentions are equally applicable to the prior art identified above, and are incorporated by reference as though fully set forth herein. In particular, RETSINA system, Sycara 2, Decker 3, Decker 4, Decker 5, Williamson, Williamson 2, KQML 93, and KQML 97 are references related to the KQML and KIF software agent architecture (referred to as “KQML/KIF Prior Art” in the Preliminary Invalidity Contentions).

III. INVALIDITY CHARTS

Invalidity charts for each item of prior art are attached to these contentions as Exhibits A–C. These invalidity charts identify where specifically in each alleged item of prior art each element of each Asserted Claim is found. While each element of each Asserted Claim is found in each item of prior art in multiple locations, the attached charts provide examples of citations sufficient to identify at least one such location where each claim limitation is found in each item of prior art.

Each item of prior art, however, discloses each claim limitation as a whole and specific citations are only exemplary. Accordingly, Amazon and its expert(s) may rely on uncited portions of the prior art references as the citations must be interpreted in light of the entire disclosure of each reference.

In addition, because persons of skill in the art generally would appreciate an item of prior art in the context of other publications, literature, products, and understanding, Amazon and its expert(s) may rely on other publications and expert testimony as aids in understanding and interpreting the cited portions, for providing context to the cited portions, and as additional evidence that the prior art discloses a claimed feature. Amazon may establish what was known to a person having ordinary skill in the art through other publications, products, and/or testimony, and reserve their right to rely on cited and uncited portions of the prior art references, other publications, and/or testimony to establish that a person of skill in the art would have been motivated to combine the references rendering the claims obvious.

Amazon may modify, amend, and/or change its interpretation of the prior art as constructions of the claim limitations may be provided by the Court, based on additional analysis by Amazon's expert(s), and/or based on other circumstances that may affect the meaning or application of the claims.

The references discussed in the claim charts in Exhibits A–C, or elsewhere identified, may disclose the elements of the Asserted Claims explicitly and/or inherently, and/or they may be relied upon to show the state of the art in the relevant timeframe. The suggested obviousness combinations are provided in the alternative to Amazon's anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not itself anticipatory.

IV. ADDITIONAL PRIOR ART

In addition to the prior art references charted, Exhibit D identifies additional prior art references that disclose or describe the general state of the art and knowledge of one skilled in the art at the time of the purported inventions and the filings of the Asserted Patents. These references may be used to show the state of the art and/or may be used as supporting references in an obviousness combination depending on how the Asserted Claims are ultimately construed by the Court. Exhibit E is incorporated here by reference from the First Supplemental Invalidity Contentions.

Amazon also incorporates here by reference, whether or not cited in Exhibit D, all prior art cited in the Asserted Patents and all prior art cited in the prosecution histories of the Asserted Patents, reexaminations, *inter partes* or covered business method patent review proceedings, and any foreign counterparts.

V. DOCUMENT PRODUCTION

Amazon has produced a copy of each asserted prior art reference identified herein that is not in the file histories of the Asserted Patents or that has not already been disclosed.

TABLE OF EXHIBITS

Exhibit	Description
A	Second Supplemental Invalidity Charts for the '115 patent
B	Second Supplemental Invalidity Charts for the '128 patent
C	Second Supplemental Invalidity Charts for the '560 patent
D	Prior Art Reflecting the General State of the Art
E	File paths from SRI's September 4, 2019 production

Dated: August 21, 2020

Respectfully submitted,

/s/ Andrew C. Mayo

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